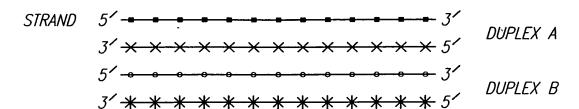
APPROVED O.G. FIG.

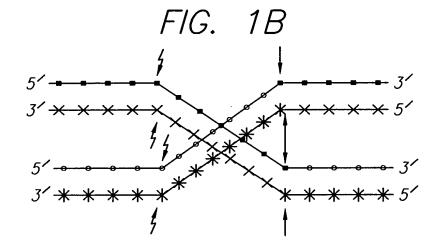
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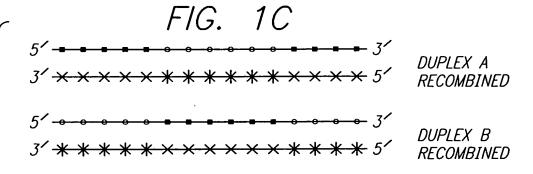
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1/18

## FIG. 1A







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2/18

FIG. 2

IDENTIFICATION OF THE MUTATED SITE DNA SEQUENCE WITHIN THE GENE CONTROLLING THE DISEASE AND DYSFUNCTION

OBTAINING THE DNA SEQUENCE SURROUNDING THE MUTATED DNA SEQUENCE WHICH IS SUBSTANTIALLY HOMOLOGOUS TO THE NORMAL WILD TYPE DNA

GENERATING THE SHORT DNA FRAGMENTS CONTAINING THE NORMAL WILD TYPE DNA SEQUENCE FLANKED ON BOTH SIDES BY SEQUENCE HOMOLOGOUS TO THOSE FLANKING THE MUTATED SITE, BY PREPARING PRIMERS DERIVED FROM THE UPSTREAM AND DOWNSTREAM DNA SEQUENCES OF THE MUTATED SITE.

AMPLIFYING THE NORMAL SHORT FRAGMENT BY PCR.

INTRODUCING GENERATED SHORT FRAGMENTS INTO CELLS EXHIBITING MUTATED DNA BY TRANSFECTION USING MICROINJECTION, ELECTROPORATION, ETC.

INDUCING OR PROMOTING HOMOLOGOUS RECOMBINATION BY ENHANCING TRANSCRIPTIONAL ACTIVITY OF THE GENE OF INTEREST, USING HUMAN RECOMBINASES, STIMULATING CELL PROLIFERATION, AND/OR STIMULATING DNA REPLACEMENT ENZYMES.

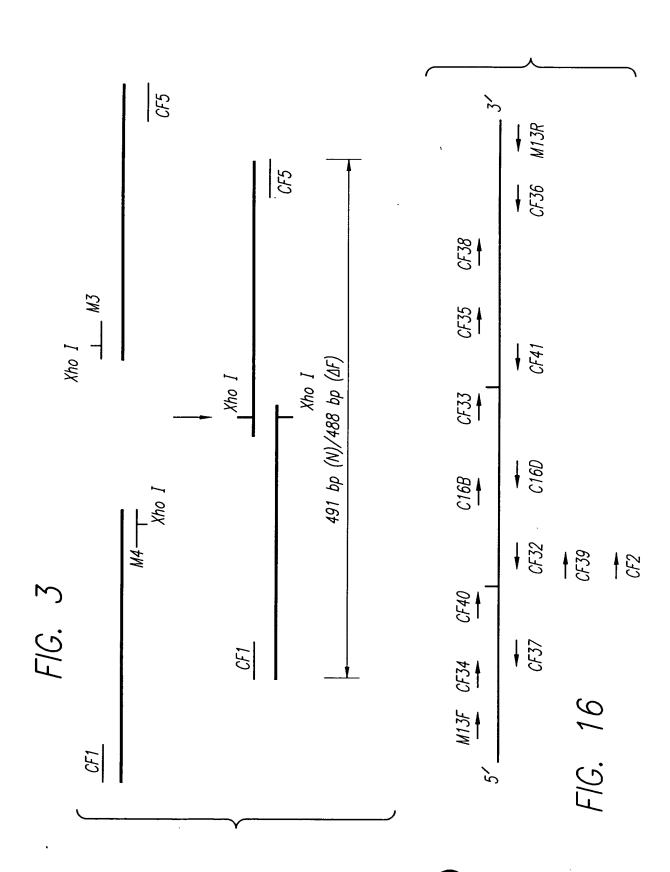
DETERMINING THE FREQUENCY OF HOMOLOGOUS RECOMBINATION.

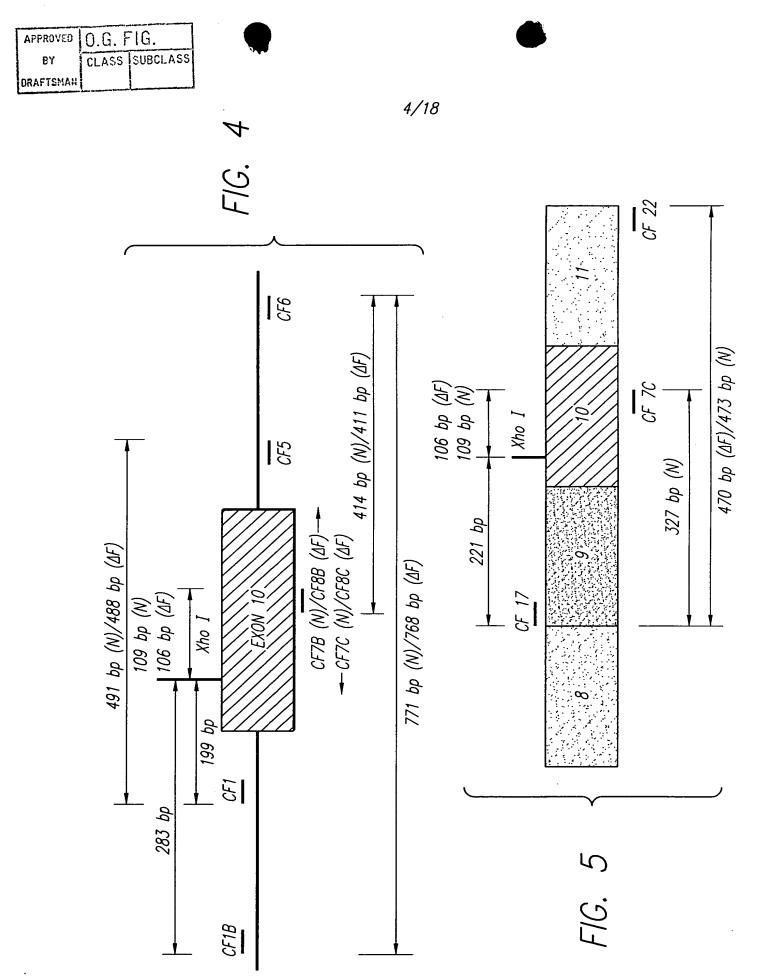
CONFIRMING THE CORRECTION OF THE GENE BY DETERMINING THE NORMAL FUNCTIONALITY.

INTRODUCING CELLS CONTAINING CORRECTED GENETIC DNA <u>IN VIVO</u>
INTO PATIENTS' CELLS WHERE THEY UNDERGO NORMAL EXPRESSION
CORRECTING THEREBY THE DYSFUNCTION OR DISEASES OR
INTRODUCING DNA FRAGMENTS INTO CELLS <u>IN VIVO</u> BY LIPOSOME—
MEDIATED DNA TRANSFER.

APPROVED O.G. FIG.
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3/18





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5/18

FIG. 6A

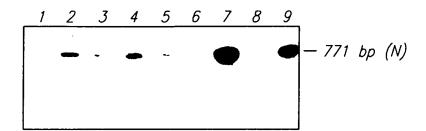


FIG. 6B

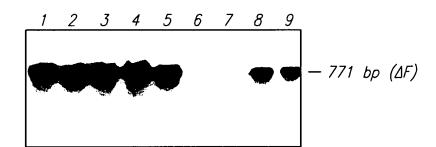
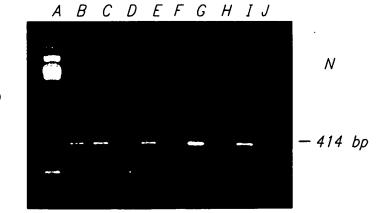


FIG. 7A



FIG. 7B



6/18

FIG. 8A

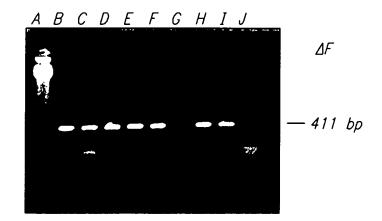
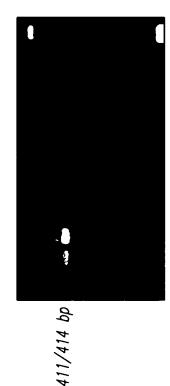


FIG. 8B



FIG. 9

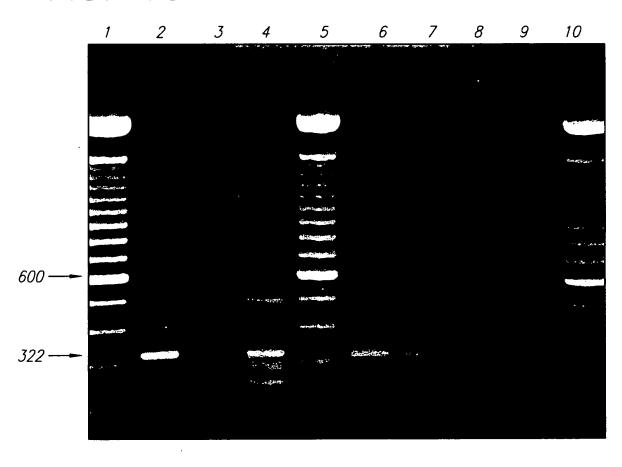


123 BP marker 1:1000000; CF7B 1:100000; CF7B 1:10000; CF7B 1:100; CF7B 1:10; CF7B 1:1; CF7B 1:0.1; CF7B 1:1000000; CF8B; CF

1:1000000; CF8B; CFPAC 1:1000000; CF7B; 16HBE 1:1000000; CF7B; water

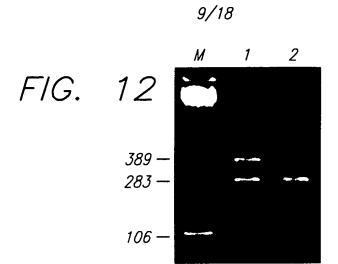
7/18

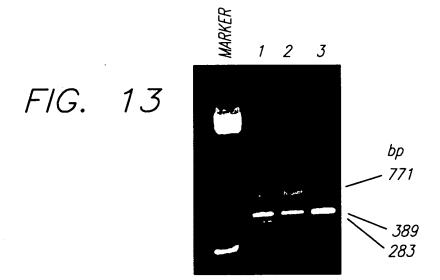
FIG. 10

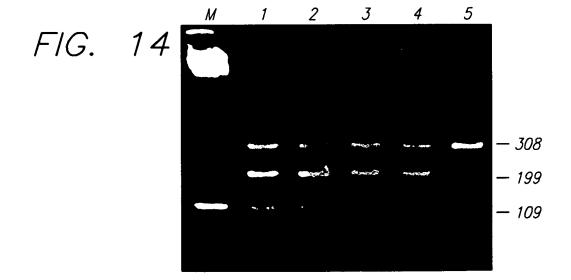


typertanning

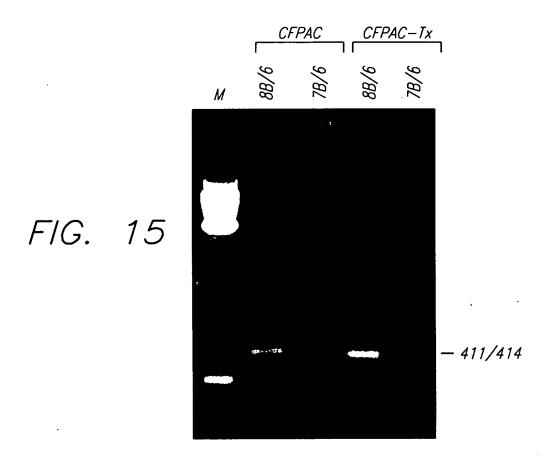
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roser asser



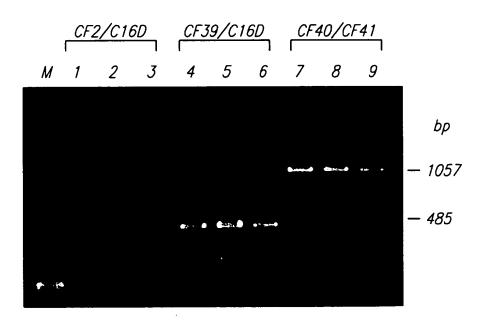
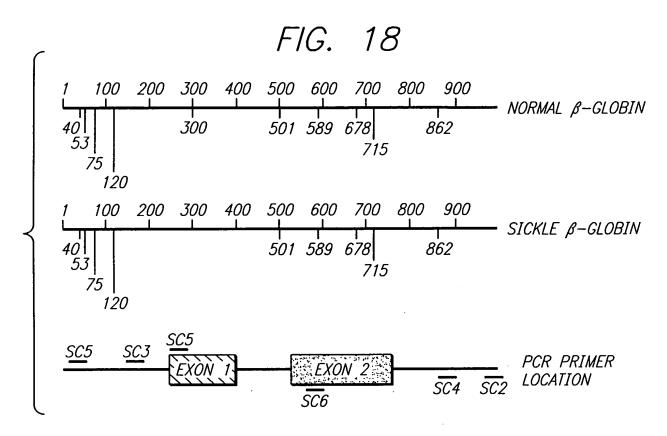
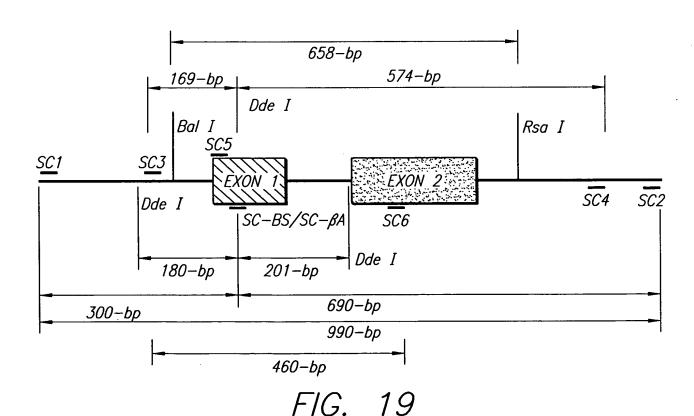


FIG. 17

APPROVED O.G. FIG.
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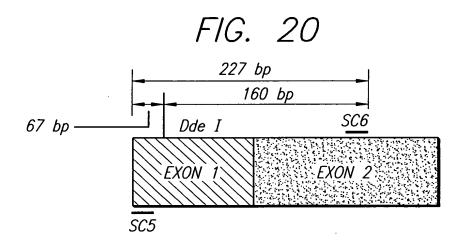




APPROVED O.G. FIG.

CLASS SUBCLASS

12/18



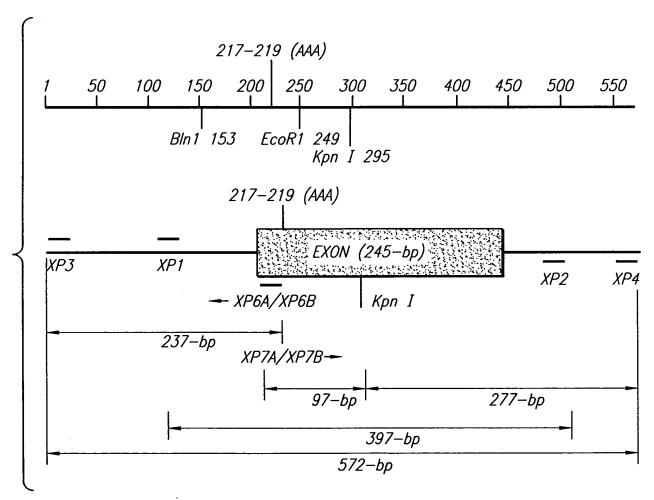
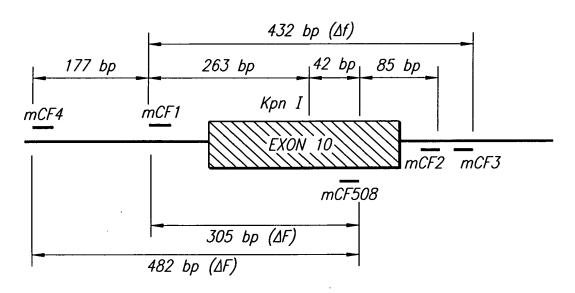


FIG. 21

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AFPROVED O.G. FIG.
BY CLASS SUBCLASS
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FIG. 22



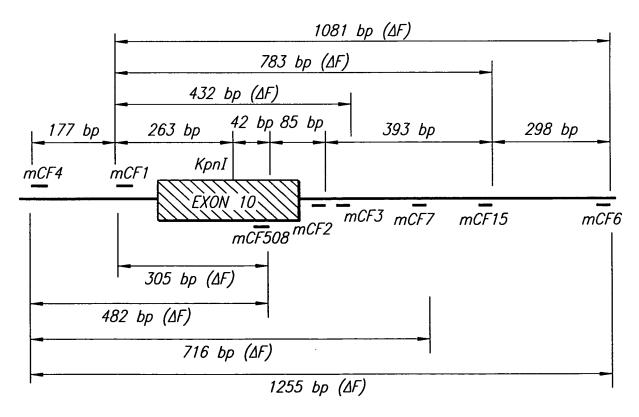
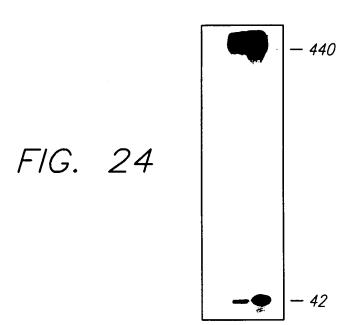


FIG. 23

14/18



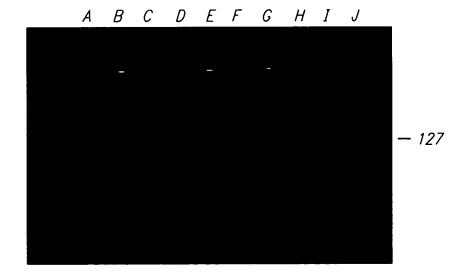
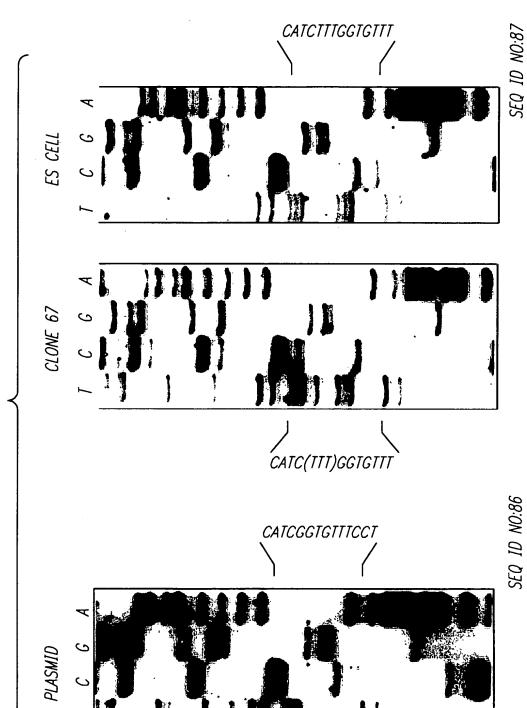


FIG. 25

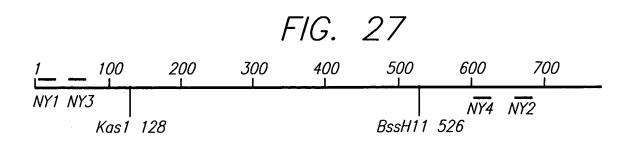
O.G. FIG.

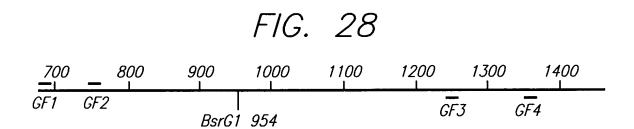
15/18

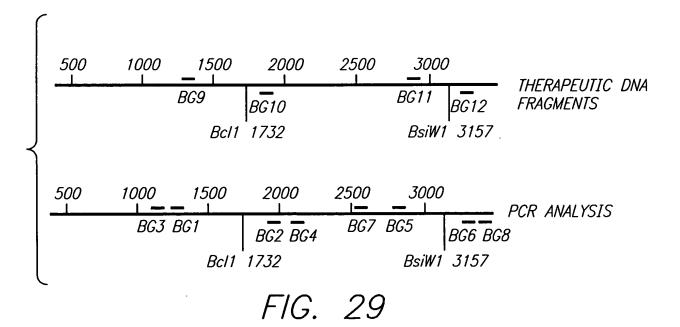
FIG. 26



APPROVED O.G. FIG.
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APPROVED O.G. FIG.

BY CLASS SUBCLASS

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## 17/18

## FIG. 30A

GAATTCCAGC CAGACGTGAT	GGCGGGTGCC	CGTAGTCCCA	GCTACTCGGG	AGGCTGAGGC	60
AGGAGAATGG CGTGAACCCA	GGAGGCAGAA	CTTGCAGTGA	GCCGAGATCG	CGCCACTGCA	120
CTCTAGCCTG GGTGACAGAG	TGAGACTCTG	TCTC <u>TAAATA</u>	AATAAATAA	<u>TAAATAAATA</u>	180
<b>AATAAATAAA</b> ATCAGTGCTT	TTTCTTCCTC	TGCTACCTCC	TTTCCTTCTA	CTCAGTTTTA	240
GTCAGTAGTA TTATCTTTT	TCAGATTTAT	CTTTGTATTG	TTAAATCTGC	TTATGCTTCT	300
ATTACTTTAT TTATTAGCTT	TAAATGATAC	CTTTTGACTT	TCAGCTTTTC	TTAATAAAGC	360
AATCAGCAAA TTTCCTTTAC	ACTCCACACT	TATACCCCAT	TTCCTTTGTT	TGTTTATTTG	420
GTTTTTACTT CTAACTTTTC	TTATTGTCAG	GACATATAAC	ATATTTAAAC	TTTGTTTTTC	480
AACTCGAATT CTGCCATTAG	TTTTAATTTT	TGTTCACAGT	TATATAAATC	TTTGTTCACT	540
GATAGTCCTT TTGTACTATC	ATCTCTTAAA	TGACTTTATA	CTCCAAGAAA	GGCTCATGGG	600
AACAATATTA CCTGAATATG	TCTCTATTAC	TTAATCTGTA	CCTAATAATA	TGAAGGTAAT	660
CTACTTTGTA GGATTTCTGT	GAAGATTAAA	<b>TAAATTAATA</b>	TAGTTAAAGC	ACATAGAACA	720
GCACTCGACA CAGAGTGAGC	ACTTGGCAAC	TGTTAGCTGT	TACTAACCTT	TCCCATTCTT	780
			taget gtaci		
CCTCCAAACC TATTCCAACT	ATCTGAATCA	***			840
ctcctc		_			
ATACTTGTCA CACTGTATTG					900
• • • • • • • • • • • • • • • • • • • •					
GCAGAGTACC TGAAACAGGA					960
TTTACAAATA AGAATATACA					1020
GCGTGATTTG ATAATGACCT					1080
TGATTATGGG AGAACTGGAG					1140
•••••					
TCTGTTCTCA GTTTTCCTGG					1200
TTTCCTATGA TGAATATAGA					1260
GAAACTATGT GAAAACTTTT					1320
					1020
ATTTGGCTCC ATATTCAATC					1380
······································					1000
TACTGTGAAT GGATCAATTA					1440
					2
ATGAAATAAA TGCAATTTAT					1500
					1000
TTATGAAATG GTGAGAATTT					1560
	·····				1500
TATATGGCAT GCATATAAGT					1620
		7(10111170)	manineene	70.000.000	1020
TCTTTAAAAA TATACTCCAA		GATTATTTTA	ΔΤΔΔΤΤΤΤΔΔ	ΤΑΑΤΑΓΤΑΤΑ	1680
GCCTAATGGA ATGAGCATTG					1740
ATTGTATCCC TGGCTTTGAA					1800
CAGAGGCAAA ATGAAGATGA					1860
CHUMUUCHAA MIUMMUMIUM	IGICATIACI	CATTICACAA	Shirini I uun	CARTAROCIA	1000

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O.G. FIG.



18/18

## FIG. 30B

ATTATCTGAA	<b>AATTACATGA</b>	AGTATTCCAA	GAGAAACCAG	TATATGGATC	TTGTGCTGTT	1920
CACTATGTAA	ATTGTGTGAT	GGTGGGTTCA	GTAGTTATTG	CTGTAAATGT	TAGGGCAGGG	1980
CAATATGTTA	CTATGAAGTT	TATTGACAGT	ATACTCCAAA	TAGTGTTTGT	GATTCAAAAG	2040
CAATATCTTT	GATAGTTGGC	ATTTGCAATT	CCTTTATATA	ATCTTTTATG	AAAAAAATTG	2100
CAGAGAAAGT	AAAATGTAGC	TTAAAATACA	GTATCCAAAA	AAATGGAAAA	GGGCAAACCG	2160
TGGATTAGAT	AGAAATGGCA	ATTCTTATAA	AAAGGGTTGC	ATGCTTACAT	GAATGGCTTT	2220
CCATGTATAT	ACTCAGTCAT	TCAACAGTTT	TTTTTTTAGA	GCCCCATCCT	TATTTTTAT	2280
ACACTTTGAG	AGCATAATGA	AAAGAAAAGC	TACCTGCAAA	AGTTTTGGAC	TTACCTCAAA	2340
GAGGATATAC	TACATTCCTC	AAAAGGCCTT	CTTCCAGGAA	TAGTATTTCA	TAACCTGGAG	2400
GTTGGAAAAA	TCTGGATTAG	TTACAAAAA	ATCTGAGTGT	TTCTAGCGGA	CACAGATATT	2460
TGTCTAGGAG	GGGACTAGGT	TGTAGCAGTG	GTAGTGCCTT	ACAAGATAAA	TCATGGGCTT	2520
TATTTACTTA	CGAGTGGAAA	AGTTGCGGAA	GGTGCCTTAC	AGACTTTTTT	TTTGCGTTAA	2580
GTATGTGTTT	TCCCATAGGA	ATTAATTTAT	AAATGGTGGT	TTGATTTCCT	CAAGTCAACC	2640
TTTAAAAGTA	TATTTAGCCA	AAATATAGCT	TAAATATATT	ACTAGTAATA	AATTTAGTAC	2700
TGTGGGTCTC	TCATTCTCAA	AATGAGCATT	TACTAATTTC	TGAACACTGT	GCTAGGTCCT	2760
GGGAATACCA	AATTGAATAA	GACATAGTCT	ATTTTTCTGA	AGGGTTTATA	GCAGAGTCCC	2820
ATAATGAAAA	AAGGAGAAGA	GGGAATTC				2908